PRM79

ASSESSING THE SIGNIFICANCE OF HBA1C DURABILITY IN COST EFFECTIVENESS ANALYSIS OF 2ND LINE ORAL THERAPIES IN THE MANAGEMENT OF TYPE 2 DIABETES

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OBJECTIVES: Due to the progressive nature of type 2 diabetes mellitus (T2DM), therapy escalation or intensification is often required to maintain acceptable levels of glycaemic control. The objective of this study was to assess how differential dual therapy failure rates influence the cost effectiveness (CE) results in T2DM. **METHODS:** This study used the IMS Core Diabetes Model (CDM), a validated and established diabetes model, to evaluate the CE of metformin+ sulphonylurea (M+S) compared to metformin + DPP-4 (M+D). Efficacy data for dual therapy was sourced from a published systematic review; HbA1c and BMI change of -0.8% and 0.199kg/m^2 (M+D) and -0.79% and 0.707kg/m^2 (M+S) respectively were applied. Rates of severe hypoglycaemia were 0.1612 and 1.538 per 100 patient years and 4.596 and 68.769 per 100 patient years for non-severe events in M+D and M+S respectively. Insulin rescue therapy was initiated at an HbA1c threshold of 7.5%. Base case analysis assumed M+D and M+S had the same HbA1c durability; lifetime CE was assessed assuming improvement in durability favouring M+D applied in 10% increments with costs (US$) and benefits discounted at 3.5%. **RESULTS:** In the base case analysis, annual HbA1c increase was 0.26% with mean time to therapy escalation of 5 years; and a predicted cost per quality adjusted life year (QALY) of $211,948. Mean annual increments in HbA1c for M+D of 0.182%, 0.13% and 0.1% were necessary to achieve costs effectiveness at willingness to pay (WTP) thresholds of $100,000, $70,000 and $50,000 respectively. Published HbA1c durability for M+D of 0.052% per year was associated with a cost per QALY of $33,427. **CONCLUSIONS:** This analysis demonstrates that the annual rate of increase in HbA1c exerts considerable influence over predicted CE and is therefore an important variable to study when assessing the CE of new interventions for the management of T2DM.

PRM80

NUTRIECONOMIC EXPLORATORY ASSESSMENT OF A DAILY CONSUMPTION OF PLANT STEROLS-ENRICHED DAIRY PRODUCTS ON STATIN'S INITIATION DELAY: A CONSUMER PERSPECTIVE APPROACH

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The efficacy of plant sterols in reducing plasma LDL-cholesterol has been demonstrated. In 2009, the European Food Safety Agency stated that for an intake of 1.5-2.4g/day plant sterols, an average reduction of LDL blood cholesterol from 7% to 10.5% can be expected and such a reduction is of biological significance in terms of reduced risk of coronary heart disease. In France, the consumption of plant-sterols enriched products (PSEP) was part of the official dietary recommendations for hypercholesterolemic subjects when the study was designed. **OBJECTIVES:** The objective was to assess the cost-effectiveness of a daily consumption of PSEP, in the context of a healthy diet, on statin's initiation delay from the consumer perspective, in the *eligible*at risk French population. **METHODS:** A 1 year cycle Markov model was built to estimate the benefit (i.e. delay/avoid statins' initiation) in a French population aged between 45 and 65 years and at risk of drug treatment according to the French Drug Agency recommendations. Information on the evolution of cholesterol level and the different cardiovascular disease risk factors was retrieved in the literature. Costs of statin treatment duration avoidance (i.e. price of PSEP fully paid by the consumers) was estimated according to age and gender. **RESULTS:** The *eligible*population included in the model was respectively 49% and 66% among the French male and female population between [45;65 y]. Based on the selected assumptions, and assuming that healthy diet is already integrated in lifestyle habits, daily cost per statin free life year due to substitution of usual dairy product by a PSEP was estimated at 0.71€/day and 1.01€/day respectively for male and female. **CONCLUSIONS:** This exploratory work allowed getting a first estimation of the cost-effectiveness of the daily consumption of PSEP, from the consumer perspective in accordance with official dietary recommendations for cholesterol management.

PRM81

GENERATING THE COST-EFFECTIVENESS FRONTIER WHEN COSTS AND/OR BENEFITS ARE CORRELATED ACROSS STRATEGIES

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OBJECTIVES: The cost-effectiveness efficiency frontier is typically generated by plotting the costs and benefits for a variety of technologies, often summarised as the mean across a large number of simulations. However, the mean across simulations may mask correlations between technologies within simulations. We sought to investigate these issues using a HTA comparing 19 different interventions. **METHODS:** We compared 19 different breast cancer surveillance strategies for women aged less than 50 years with a BRCA1 mutation. We calculated the cost-effectiveness efficiency frontier for 5,000 simulations and also based on the mean costs and benefits for each strategy. We also investigated the probability of a strategy appearing on the frontier and correlations between whether or not different strategies appeared on the frontier. **RESULTS:** The efficiency frontier based on means included 6 strategies. This was the cost-effectiveness efficiency frontier in only 22 (0.44%) of 5,000 simulations. Forty four other frontiers were more likely to be generated by simulations. Two strategies not on the frontier of means had a substantial probability of being on the frontier. Some strategies were negatively correlated such that the appearance of one strategy on the frontier never or seldom co-occurred with another. These negative correlations also occurred between strategies that appeared on the frontier of means. **CONCLUSIONS:** The cost-effectiveness frontier generated by the average costs and benefits of each technology may mask inter-dependencies between technologies. Parameter values that render one technology efficient may render another inefficient, and vice versa. There can also be uncertainty about which interventions appear on the frontier, and the adoption of approaches to select competing interventions solely on the basis of being on the efficiency frontier may be unreasonable.

PRM82

VALIDATING AN INDOLENT NON-HODGKIN'S LYMPHOMA (NHL) COST-EFFECTIVENESS ANALYSIS MODEL USING TWO SOFTWARE TOOLS: KEY IMPLEMENTATION CONSIDERATIONS AND RESULTS

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OBJECTIVES: The ISPOR-SMDM Modeling Good Research Practices Task Force highlights the importance of model transparency and validation, including cross validation, as a means to establishing trust and confidence in economic models. (1) To investigate how a technical model validation can be conducted by reconstructing a previously-developed Microsoft Excel cost-effectiveness model using TreeAge; and, (2) to validate the model by comparing the results of two implementations. **METHODS:** An Excel-based cohort model on indolent NHL was reconstructed in in TreeAge using the same model structure, clinical inputs, and costing assumptions. Lifetime costs, life-years, quality-adjusted life-years, and incremental cost-effectiveness ratios (ICERs) were projected and compared for bendamustine-rituximab (Ben-R) versus fludarabine-rituximab (Fdb-R) in relapsed indolent NHL patients in Colombia. All costs were in 2013 Colombian pesos. The base-case results and sensitivity analyses were compared between the two software tools and key implementation considerations were identified. **RESULTS:** Key differences in the two software tools were identified and implementation differences will be described, including handling of survival inputs and application of one-time and per-cycle costs. The TreeAge model produced more favorable results compared to the Excel model. The total costs for Ben-R and Fdb-R were $223,400,660 and $208,115,352 in the TreeAge model, respectively, while in the Excel model they were $291,192,912 and $260,463,392. The ICERs were $11,582,974/LY and $13,815,417/QALY in the TreeAge model and $23,286,360/LY and $27,956,124/QALY in the Excel model. However, once the differences between the two models were accounted for in implementation, the reconstructed TreeAge model produced approximately the same results compared to the original Excel model (23,381,795/LY vs. $23,286,360/LY). **CONCLUSIONS:** There are inherent differences in model implementation in Excel vs. TreeAge that should be considered when performing double implementation and when interpreting the model results. Model validation using two software tools is a practical way to ensure proper and intended implementation.

PRM83

RELATIONSHIP BETWEEN MODELLING APPROACH AND REPORTED OUTCOMES: CASE STUDIES OF MODELS FOR THE TREATMENT OF SCHIZOPHRENIA

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OBJECTIVES: Different modeling approaches have been used to estimate the cost-effectiveness of antipsychotics used to reduce psychotic symptoms of schizophrenia. This study systematically reviewed schizophrenia modelling studies, to examine the relationship between the modeling approach used in schizophrenia studies and their reported outcomes. **METHODS:** A systematic literature review of MEDLINE, EconLit, Embase, and the Cochrane Library and an Internet search identified published results of schizophrenia modeling studies from 2000 to 2011. Two independent reviewers performed searches according to a prespecified protocol limited to English-language articles from any country. **RESULTS:** Eighty-three publications reported 80 individual modelling studies that met the inclusion criteria. Fifty-seven studies reported results of 71 pairs of antipsychotic drug comparisons (drug A vs. drug B) as incremental cost-effectiveness ratios (ICERs), such as cost per quality-adjusted life-year (QALY), which allowed a comparison of results. The majority of the economic evaluations used a Markov (23 studies) or decision-tree model 23 studies); 9 studies used a discrete-event simulation (DES) model, and 2 studies used a microsimulation model. Among the 11 comparisons with contradictory results, we focused on the following drug comparisons of atypical antipsychotics with the most studies: risperidone long-acting injection versus oral olanzapine, oral risperidone versus oral olanzapine, oral risperidone or oral olanzapine versus ziprasidone, and oral olanzapine versus oral aripiprazole. Overall, model structure, time horizon, and patient population did not affect study results. Differences among studies with contradictory results generally reflected definition of response and relapse rates in the health states, validity of clinical data sources for transition probabilities, and assignment of utilities to estimate QALYs. **CONCLUSIONS:** The cost-effectiveness results of the majority of models were in agreement regardless of the model structure. In models with contradictory results, most differences could be explained by definition of response, relapse, discontinuation, or adverse-event rates and/or by the selection of sources.

PRM84

LITERATURE REVIEW AND ASSESSMENT TO POPULATE A DECISION-ANALYTIC MODEL EVALUATING A NOVEL PROGNOSTIC IN EARLY LUNG CANCER

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OBJECTIVES: A novel prognostic test is being developed to predict cancer-related mortality in early non-small cell lung cancer (NSCLC) to inform the use of adju-